

New Species of Mollusks (Gastropoda and Bivalvia) from the Tropical Western Atlantic, West Africa, and Red Sea

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ABSTRACT Eight new species of mollusks are described from the Gulf of Mexico, Virgin Islands, and Brazil in the Tropical Western Atlantic, and also Gambia, West Africa and the Gulf of Aqaba, northern Red Sea. These new taxa include: the muricid *Jaton rika* n. sp. from Gambia; six cone shells including *Darioconus bratcherae* n. sp. from the Gulf of Aqaba, *Jaspidiconus tammymyersae* n. sp. from the Virgin Islands, and the Brazilian species *Jaspidiconus ramosorum* n. sp., *Jaspidiconus serafimi* n. sp., *Jaspidiconus toincabrali* n. sp., and *Poremskiconus potiguar* n. sp.; and the Floridian Ten Thousand Islands endemic venerid bivalve *Mercenaria browni* n. sp..

KEY WORDS Muricidae, Conidae, Veneridae, *Jaton*, *Darioconus*, *Jaspidiconus*, *Poremskiconus*, *Mercenaria*, Gulf of Mexico, Ten Thousand Islands, Gambia, Gulf of Aqaba, Virgin Islands, Brazil

INTRODUCTION

Through the generosity of several shell dealers, inspired amateur malacologists, and local naturalists, a large number of new species of gastropods and bivalves recently have been brought to our attention. These unnamed mollusks have been sent to us in support of an ongoing research project that we are currently conducting on worldwide marine biogeography and molluscan biodiversity. We are especially grateful to Damaso Monteiro of Portugal and Brazil, Rika Goethaels and Fernand De Donder of Belgium, and Marcus and Jose Coltro of Brazil and Italy for recognizing these species as new and generously donating specimens of each for description. We also wish to recognize A. Kenneth ("Kenny") Brown of Chokoloskee Island, Florida who, along with his family members, has enthusiastically supported our ongoing research on the biodiversity of the Ten Thousand Islands, Florida. Out of the large amount of study material that we have received

from these individuals, eight taxa were important enough to our research that we have decided to formally describe them here. All of these new gastropods will be illustrated and discussed in our up-coming book on marine biogeography, *Illustrated Guide to Marine Molluscan Biogeography (Tropical and Warm Temperate Seas)*, and the new venerid bivalve will be illustrated and discussed in another up-coming book, *Shells and Marine Life of the Ten Thousand Islands, Southwestern Florida*.

The holotypes of the new species are deposited in three different museums: in the Collection Mollusques, Museum National d'Histoire Naturelle, Paris, France (with an MNHN catalog number); in the molluscan collections, Zoological Museum of the University of Sao Paulo, Sao Paulo, Brazil (with MZSP catalog numbers); the Department of Malacology, Los Angeles County Museum of Natural History, Los Angeles, California (with LACM catalog numbers).

SYSTEMATICS

Class Gastropoda
 Subclass Sorbeoconcha
 Order Prosobranchia
 Infraorder Neogastropoda
 Superfamily Muricoidea
 Family Muricidae
 Subfamily Ocenebrinae
 Genus *Jaton* Pusch, 1837

Jaton rika Petuch and Berschauer,
 new subspecies
 (Figure 1 A, B)

Description. Shell small for genus, elongated and fusiform, with low, stepped spire and protracted siphonal canal; body whorl roughly triangular in shape, grading directly into wing-like varix on margin of siphonal canal; shoulder sharply angled, with flattened subsutural area on body whorl and flattened, tabulate spire whorls; 3 thick and flattened varices per whorl, with edge of varix having slight undulations that correspond to 5 low, rounded longitudinal cords; cord around shoulder being largest in size and having best development, forming prominent shoulder keel; body whorl and spire whorl surfaces smooth and waxy, with fine crenulations and frills present only on ventral side of each varix; siphonal canal portion of varix best developed, producing broad shelf-like extension; single large rounded knob present between each pair of varices; shell color pale cream-white with 2 or 3 thin brown bands around middle of body whorl, crossing dorsal and ventral sides of each varix and intervarical knobs; scattered small brown dots and patches also present along shoulder cord, on posterior end of intervarical knobs, along the varical wing of the siphonal canal, and on the anterior tip; aperture oval in shape, proportionally very large, edged with a thin, raised peristomal ridge; outer edge of lip with dentate peristome, being

ornamented with 5 proportionally-large, low, rounded teeth and numerous fine fimbriations.

Material Examined. HOLOTYPE - length 18.7 mm, width 10.2 mm, off Gunjur, Gambia, MNHN-IM-2000-35012; OTHER MATERIAL EXAMINED - 2 specimens, lengths 14.1 mm and 18.0 mm, from the same locality as the holotype, in the research collection of the senior author; 1 specimen, length 15.1 mm, from the same locality as the holotype, in the research collection of the junior author; 8 specimens, lengths 13.1 mm to 19.9 mm, from the same locality as the holotype, in the De Donder-Goethaels collection, Peutie, Belgium; 2 specimens, lengths 17.6 mm and 19.5 mm, from the same locality as the holotype, in the research collection of Roland Houart, Belgium.

Type Locality. The holotype was collected from fishermen's nets set in 3-5 m depth, off Gunjur, Gambia.

Distribution. Known only from the coast of Gambia and the area near the mouth of the Gambia River.

Etymology. The new taxon honors Rika Goethaels of Peutie, Belgium who, along with Fernand De Donder, discovered the new *Jaton* during their explorations in Gambia and kindly donated the type lot of specimens.

Discussion. With the discovery of this new Gambian ocenebrine muricid, five species of *Jaton* are now known to inhabit the West African coast. These include (on a north-south gradient): *Jaton hemitripteris* (Lamarck, 1816) from southern Morocco and Western Sahara; *Jaton flavidus* (Jousseaume, 1874) from Senegal; *Jaton rika* Petuch and Berschauer, new species, from Gambia; *Jaton decussatus* (Gmelin, 1791) from Senegal to Gabon; and *Jaton sinespina* Vermeij and Houart, 1996 from Angola. Of

these, *Jaton rika* is most similar to the Moroccan and Western Saharan *Jaton hemitripter* (Figure 1 C, D), but differs in being a much smaller shell that averages only one-half the length of the Saharan coastal species, in having a proportionally lower spire, in having a less-sculptured shell that has a smooth, waxy shell surface, in lacking the strong spiral cords seen on *J. hemitripter*, and in being a more colorful shell, having three thin brown spiral bands on the body whorl and small brown patches scattered over the intervarical knobs and anterior tip. Biogeographically and ecologically, *J. rika* and *J. hemitripter* are also very different, with *J. rika* being found only on muddy sea floors and mud-covered rocky platforms along the coast of Gambia, and with *J. hemitripter* being found under rocks in the intertidal zone only along southern Morocco, Western Sahara, and extreme northernmost Mauritania. No individuals of *J. hemitripter* are known from south of Western Sahara and northern Mauritania and the species has never been collected along the intervening coasts of southern Mauritania or Senegal, especially in the Cap-Vert Peninsula area. This geographical separation, and the accompanying gene flow barrier, support the species-level status of the new Gambian muricid.

Superfamily Conoidea

Family Conidae

Subfamily Coninae

Genus *Darioconus* Iredale, 1930

Darioconus bratcherae Petuch and
Berschauer, new species
(Figure 1 E, F)

Description. Shell of average size for genus, shiny and polished, cylindrical and fusiform, narrow across shoulder, with slightly convex sides; shoulder rounded, only slightly angled, with sloping and faintly canaliculate subsutural

area; spire elevated, distinctly pyramidal, with domed early whorls; spire whorls slightly canaliculate; body whorl and spire whorls pure white, overlaid by network of large and small interconnected reddish-brown triangles; some large triangles fuse into broad open white patches which are often separated by large reddish-brown amorphous patches containing numerous small darker brown spiral lines of tiny dots and dashes and minute white triangles; areas between small triangles often filled with clusters of minute triangles in fractal pattern; spire whorls also covered with diffuse network of reddish-brown triangles and scattered darker brown patches; early whorls and protoconch bright pink; protoconch aculeiform, projecting; aperture proportionally wide, expanding toward anterior end.

Material Examined. HOLOTYPE - length 33.6 mm, width 15.9 mm, Eilat, Gulf of Aqaba, Israel, LACM 3730; OTHER MATERIAL EXAMINED - 2 specimens, lengths 47.0 mm and 51.0 mm, from the same locality as the holotype, in the research collection of the senior author; length 41.7 mm, from the same locality, in the research collection of the junior author.

Type Locality. Found on sand and coral rubble, 2 m depth, off Eilat, Israel, Gulf of Aqaba.

Distribution. The new species is confined to the northern Red Sea, including the entire Gulf of Aqaba and the adjacent Egyptian coast from Sharm el-Sheikh and Haghada to Safaga. *Darioconus bratcherae* may also be present throughout the entire northern half of the Red Sea, but little data on the mollusks of that area exists and the range of the new species is still conjectural.

Etymology: The new taxon honors the memory of Twila Bratcher, late of Hollywood, California, a renowned diver and an inspired malacologist,

who collected the holotype on one of her expeditions to the Gulf of Aqaba. Twila Bratcher was also one of the pioneer women SCUBA divers and was recently inducted, posthumously, into the Women Divers Hall of Fame.

Discussion. *Darioconus bratcherae* has often been misidentified as the closely-related *Darioconus quasimagnificus* (da Motta, 1982) (Figure 1 G, H), which was originally described from the Gulf of Oman and is now known to range into the Gulf of Aden and the southern Red Sea. The new Gulf of Aqaba species is morphologically close to the flat-spined *D. quasimagnificus* but differs in being a much more slender and elongated shell that is narrower across the shoulder, in consistently having a higher spire with sloping whorls and a rounded shoulder, in having a much lighter color pattern with a reddish-brown triangular network instead of dark purple-brown network and large dark brown patches and bands, and in having a more diffuse triangle pattern with proportionally larger triangles. In this last shell character, the new species more closely resembles the Persian Gulf *D. laueri* Monnier and Limpalaer, 2013 than it does the Omani and southern Red Sea *D. quasimagnificus*.

Poremskiconus potiguar Petuch and
Berschauer, new species
(Figure 1 I, J)

Description. Shell of average size for genus, stocky with slightly rounded sides; shoulder sharply-angled, edged with pronounced carina; spire elevated, pyramidal, slightly scalariform; body whorl shiny and polished, with 15-20 very low, faint spiral threads which become more numerous and stronger toward anterior end; body whorl color variable, ranging from red and orange to yellow and khaki green; colored sections of body whorl overlaid with variable

number of very fine darker-colored spiral threads and rows of tiny dots; mid-body marked with wide band of large white flammules, with some fusing into solid white band; white mid-body band often edged with small pale reddish-brown flammules; spire whorls and shoulder carina white, with 10-12 large, prominent, evenly-spaced reddish-brown flammules per whorl; spire flammules extend onto white shoulder carina, producing distinctive checkered pattern; aperture proportionally narrow, slightly arcuate; interior of aperture varying with color of individual, being lighter-colored version of exterior body whorl color.

Material Examined. HOLOTYPE - length 20.9 mm, width 10.6 mm, off Tibau do Sul, Brazil, MZSP 144897; OTHER MATERIAL EXAMINED - 2 specimens, lengths 21.1 mm, and 22.0 mm, from the same locality as the holotype, in the research collection of the senior author, length 19.4 mm, from the same locality, in the research collection of the junior author.

Type Locality. The holotype was collected in a lobster trap set at 10 m depth, on the coralline algal reef systems off Tibau do Sul, Rio Grande do Norte State, Brazil.

Distribution. Known only from the area off Tibau do Sul, Rio Grande do Norte State, Brazil.

Etymology. Named for a "Potiguar", a Tupi Indian name meaning "he who eats shrimp", now considered a nickname for anyone from Rio Grande do Norte State, Brazil. The name is proposed as a noun in apposition and honors the people of Rio Grande do Norte State.

Discussion. *Poremskiconus potiguar* is the newest-known member of a close-knit species complex that inhabits coralline algal reef systems off the coasts of Ceara and Rio Grande do Norte States, northern Brazil. Members of

this species group have direct development in their larval stages and cannot disperse beyond their home reef systems. This genetic isolation has led to the evolution of a northern Brazilian species radiation containing at least six distinct taxa, which include: *Poremskiconus mauricioi* (J. Coltro, 2004) from Rio do Fogo, Rio Grande do Norte State (type locality); *P. fonsecai* Petuch and Berschauer, 2016 also from Rio do Fogo, Rio Grande do Norte State; *P. smoesi* Petuch and Berschauer, 2016 from Camocim, Ceara State; *P. tourosensis* Petuch and Berschauer, 2018 from Touros, Rio Grande do Norte State; *P. mariaodeteae* Petuch and Myers, 2014 from Camocim, Ceara State; and *P. potiguar* Petuch and Berschauer, n. sp. from Tibau do Sul, Rio Grande do Norte State (see Petuch and Berschauer, 2016; 2018 and Petuch and Myers, 2014).

Of these taxa, *Poremskiconus potiguar* most closely resembles *P. mauricioi* from northeastern Brazil (Figure 1 K, L), especially in having white spire whorls with darker crescent-shaped flammules and a white shoulder carina marked with tan or brown, evenly-spaced checkers. The new species differs from *P. mauricioi* in being a consistently smaller and more slender shell with a higher, more protracted spire, and in lacking the large, prominent band of dark brown flammules around the mid-body. The spire of *P. potiguar* is distinctly pyramidal and scalariform while the spire of *P. mauricioi* is noticeably flatter. In this regard, the new species shows a close resemblance to *P. fonsecai*, also from Rio Grande do Norte State, but differs in being a larger and much more colorful shell, with intense orange and yellow colors and with dark brown flammules on the spire whorls and shoulder carina. *Poremskiconus fonsecai* also differs from *P. potiguar* in having proportionally stronger spiral threads around the body whorl, giving the shell a rougher look.

Subfamily Conilithinae

Genus *Jaspidiconus* Petuch, 2004

Jaspidiconus ramosorum Petuch and Berschauer, new species (Figure 2 A, B)

Description. Shell of average size for genus, slender, elongated and cylindrical, with straight sides; shoulder sharply-angled, bordered by pronounced sharp carina; spire elevated, pyramidal in shape, subscalariform; body whorl smooth and shiny, sculpted with 14-16 thin, faintly-incised spiral sulci which become stronger and closer together at anterior end; young specimens have strong spiral sulci which become fainter and almost obsolete on mature specimens; body whorl deep blue or blue-purple overlaid with numerous dark brown and pale bluish-white longitudinal flammules arranged in irregular zebra-striped pattern; spire whorls pale blue, with widely-spaced dark brown flammules arranged in radiating pattern; spire flammules extend onto shoulder carina, producing distinct checkered pattern; first 4-5 whorls and protoconch pale orange in color; aperture narrow, straight, dark brown within interior; protoconch proportionally large, bulbous, mammilate, composed of 2 dome-like whorls.

Material Examined. HOLOTYPE - length 19.8 mm, width 9.5 mm, off Nova Vicosa, Bahia State, Brazil, MZSP 144894; OTHER MATERIAL EXAMINED - length 22.0 mm, from the same locality as the holotype, in the research collection of the senior author; length 13.0 mm, from the same locality as the holotype, in the research collection of the junior author.

Type Locality. The holotype was collected on sand and coral rubble in 25 m depth off Nova Vicosa, Bahia State, Brazil, on the Abrolhos Platform.

Distribution. Known only from the Abrolhos Platform area off Nova Vicosa, Bahia State, Brazil.

Etymology. The new taxon honors Fabiano Ramos and the Ramos Family of Alcobaca, Bahia State, Brazil, who collected the type lot of the new species.

Discussion. Of the known southern and central Brazilian Province *Jaspidiconus* species, only *J. simonei* Petuch and Myers, 2014 comes closest to the new species in general shell shape and spire development. This species is the southernmost member of the genus *Jaspidiconus* and is found on intertidal sand bars from Guarapari, Espirito Santo State south to Cabo Frio, Rio de Janeiro State. The tropical Abrolhos Platform - dwelling *J. ramosorum* differs from its colder water congener, *J. simonei*, in having a more slender and cylindrical shell, in having more distinct incised spiral sulci, in having a darker-colored shell with a distinct brown and blue zebra pattern, in having distinct dark checkers on the shoulder carina and radiating stripes on the spire whorls, in having a bright orange protoconch and early whorls.

Jaspidiconus serafimi Petuch and
Berschauer, new species
(Figure 2 C, D)

Description. Shell of average size for genus, stocky, barrel-shaped, inflated, with rounded, convex sides; shoulder sharply-angled, bordered by low, rounded carina; spire elevated, pyramidal in shape, slightly scalariform; body whorl smooth and shiny, sculpted with 12-14 evenly-spaced incised spiral sulci, which become larger and more deeply-impressed on anterior one-half of body whorl; deeply-incised sulci of anterior end produce 6-8 large, prominent spiral cords; body whorl base color

pale pinkish-tan, overlaid with variable amounts of darker pinkish-tan amorphous flammules, often arranged in longitudinal zig-zag pattern; spire whorls pale pinkish-white marked with widely-scattered dark reddish-brown irregular flammules; early whorls and protoconch pale yellow-white; edge of carina marked with row of 12-18 evenly-spaced large reddish-brown dots, some of which connect to spire flammules; aperture proportionally wide and flaring, becoming wider toward anterior end; interior of aperture pale pinkish-tan.

Material Examined. HOLOTYPE - Length 17.7 mm, width 9.1 mm, off Tibau do Sul, Rio Grande do Norte State, Brazil, MZSP 144896; OTHER MATERIAL EXAMINED - 3 specimens, 16.2 mm, 18.1 mm, and 19.0 mm, from the same locality as the holotype, in the research collection of the senior author; length 17.2 mm, from the same locality as the holotype, in the research collection of the junior author.

Type Locality. The holotype was collected in a lobster trap set at 10 m depth, on the coralline algal reef systems off Tibau do Sul, Rio Grande do Norte State, Brazil.

Distribution. Known only from the area off Tibau do Sul, Rio Grande do Norte State, Brazil.

Etymology. The new taxon honors Fernando Serafim of Lisboa, Portugal, well-known Portuguese tenor and opera singer and inspired amateur malacologist.

Discussion. Of the known northern and central Brazilian Province *Jaspidiconus* species, *J. serafimi* is most similar to the central Bahia State endemic *J. josei* Petuch and Berschauer, 2016. Although having the same rotund and inflated shell shape, the new Rio Grande do Norte species differs from the Bahian *J. josei* in having a smaller and more slender shell, in

having a higher and more protracted spire, in having a much paler shell color and color pattern, in having the deeply-incised sulci around the body whorl, and in having the prominent thick spiral cords around the anterior end and siphonal region.

Jaspidiconus tammymyersae Petuch and
Berschauer, new species
(Figure 2 E, F)

Description. Shell very small for genus, fusiform, with slightly rounded sides; shoulder sharply angled, subcarinate; spire high and protracted with slightly stepped whorls, distinctly pyramidal; body whorl smooth and shiny, with anterior one half ornamented with 10-12 evenly-spaced incised spiral sulci which become stronger and close together toward anterior end; spire whorls smooth and shiny, ornamented with very numerous closely-packed crescent-shaped growth increments; shell color uniform pale yellow cream overlaid with 2 bands of large, very pale orange amorphous patches, one below shoulder and one around anterior one-third of body whorl; spire with scattered large pale orange amorphous patches; aperture proportionally wide, becoming wider toward anterior end; interior of aperture bright yellow; protoconch proportionally very large, bulbous, mammilate, composed of 2 whorls, pale orange in color.

Material Examined. HOLOTYPE - length 13.3 mm, width 6.7 mm, Little St. James Island, US Virgin Islands, LACM 3659; OTHER MATERIAL EXAMINED - 2 specimens, 12.2 mm and 14.1 mm, from the same locality as the holotype, in the research collection of the senior author; length 13.4 mm, from the same locality as the holotype, in the research collection of the junior author.

Type Locality. The holotype of *Jaspidiconus tammymyersae* was collected on a clean coral sand sea floor in 8 m depth off Little St. James Island, U.S. Virgin Islands. The type lot was collected by Gary Mackintosh.

Distribution. Known only from the area around Little St. James Island, United States Virgin Islands, where the new species lives on clean coral sand bottoms near coral reefs.

Etymology. The new taxon honors Tammy Bailey Myers of Ormond Beach, Florida, an inspired amateur malacologist and naturalist and a lover of the Conidae.

Discussion. Of the known northern Caribbean *Jaspidiconus* species (Antillean Subprovince of the Caribbean Province; see Petuch, 2013), *J. tammymyersae* most closely resembles *J. culebranus* Petuch, Berschauer, and Poremski, 2016 from Culebra Island east of Puerto Rico. The new species differs from the Culebra Island endemic in being a smaller and more slender shell that is narrower across the shoulder, in having a narrower spire profile, in being a more colorful shell with pale orange amorphous blotches and a bright yellow aperture interior, and in having a much larger and more bulbous protoconch.

Jaspidiconus toincabrali Petuch and
Berschauer, new species
(Figure 2 G, H)

Description. Shell of average size for genus, stocky and inflated, rotund, wide across shoulder; spire elevated and protracted, subpyramidal, distinctly stepped and scalariform; shoulder sharply angled, bordered by large undulating carina; body whorl shiny and polished, heavily ornamented with 12-14 spiral rows of proportionally-large rounded, bead-like pustules; deep spiral sulcus present

between rows of pustules; shoulder carina edged with row of large pustules, producing distinct coronated appearance; body whorl and spire whorls pure white, infused with large, widely-scattered patches of very pale orange or yellow; some specimens with very small, pale orange spots present between shoulder coronations and on edges of spire whorls (as on holotype); aperture proportionally wide, flaring, becoming wider toward anterior end; interior of aperture white; protoconch, proportionally large, mammillate, composed of 2 ½ whorls, white in color.

Material Examined. HOLOTYPE - length 14.0 mm, width 8.0 mm, from off Tibau do Sul, Rio Grande do Norte State, Brazil; OTHER MATERIAL EXAMINED - 4 specimens, lengths 13-18 mm, from the same locality as the holotype, in the research collection of the senior author; 3 specimens, lengths 14-17 mm, from the same locality as the holotype, in the research collection of the junior author.

Type Locality. The holotype was collected in a lobster trap set at 10 m depth, on the coralline algal reef systems off Tibau do Sul, Rio Grande do Norte State, Brazil.

Distribution. Known only from the area off Tibau do Sul, Rio Grande do Norte State, Brazil.

Etymology. The new taxon honors Antonio (“Toin”) Jose Cabral of Rio Grande do Norte State, Brazil, who collected the type lot of specimens from lobster traps off Tibau Norte.

Discussion. At first glance, this heavily pustulated rotund cone shell somewhat resembles a small white raspberry. Of all the Brazilian pustulated *Jaspidiconus* species, such as *J. crabosi* Petuch and Berschauer, 2018, *J. ogum* Petuch and Myers, 2014, *J. henckesi* (J. Coltro, 2004), and *J. damasomonteiroi* Petuch

and Myers, 2014, the new Rio Grande do Norte *J. toincabrali* has, proportionally, the largest pustules and the strongest pustulated shell ornamentation (see Petuch and Berschauer, 2018 for an overview of some of the northern Brazilian *Jaspidiconus* species). In both general shell shape and arrangement of the pustules, *J. toincabrali* is most similar to *J. damasomonteiroi* from Camocim, Ceara State, but differs in being a smaller, stockier, and less elongated species, in having a proportionally lower spire, and in having a white shell color as opposed to the intense pinks, oranges, and brown flammules seen on *J. damasomonteiroi*.

Class Bivalvia

Subclass Heterodonta

Order Veneroida

Superfamily Veneroidea

Family Veneridae

Subfamily Chioninae

Genus *Mercenaria* Schumacher, 1817

Mercenaria browni Petuch and
Berschauer, new species
(Figure 3 A, B)

Description. Shell small for genus, thin, ovately rounded in outline, dorsoventrally compressed; lunule proportionally large, compressed and elongated, subcardiform, bounded by deeply-incised lines; inner margin of commissure crenulate; umbones recurved, only slightly prosogyrate; shell exterior sculpted with numerous strong, rough, closely-packed raised concentric growth lines; 1/3 to 1/2 of the post-umbonal early shell growth ornamented with proportionally-large, strong, widely-separated concentric lamellae; shell color pale cream-white, with large purple-brown patches and purple bands being present on escutcheon area and umbones; interior of shell white with thin purple line present around anterior and posterior shell margins; pallial sinus deeply reflexed and

coming to sharp point; both valves with 3 cardinal teeth, with broad central tooth being bifurcated by shallow groove.

Material Examined. Holotype - length 71.3 mm, width 64.0 mm, Round Key, Ten Thousand Islands, Collier County, Florida, LACM 3731; OTHER MATERIAL EXAMINED - 3 specimens, lengths 48 mm, 83 mm, and 93 mm, from the same locality as the holotype, in the research collection of the senior author; 2 specimens, lengths 76 mm and 85 mm, from the same locality as the holotype, in the collection of A. Kenneth ("Kenny") Brown, Chokoloskee Island.

Type Locality. On muddy-sand flats at low tide, northern side of Round Key, Ten Thousand Islands, Collier County, Florida.

Distribution. Known only from the tidal creeks and lagoons of the Ten Thousand Islands of Collier and Monroe Counties, Florida, from Cape Romano south to the mouth of the Shark River.

Etymology. The new taxon honors A. Kenneth ("Kenny") Brown, Jr. of Chokoloskee Island, Florida, an inspired amateur naturalist who has provided us with years of invaluable aid and assistance while conducting our research in the Ten Thousand Islands.

Discussion. In 1902, William Healey Dall discovered and named a small oval-shaped venerid bivalve that he had found living within the brackish lagoons and estuaries of the Texas coast. This endemic Texas bivalve, *Mercenaria texana* (Dall, 1902) (Figure 3 F), was found to occur along with the larger, ubiquitous Gulf and U.S. East Coast *Mercenaria campechiensis* (Gmelin, 1791) (Figure 3C, D). Although sympatric within the Texas lagoon systems, the widely-distributed *M. campechiensis* was found

to prefer more saline water with fewer salinity fluctuations. On the other hand, *M. texana* was found to prefer more estuarine conditions, within areas of wildly-fluctuating salinities and was actually only sympatric with its larger congener in a narrow area of stable water conditions. Over one hundred years after Dall's discovery, the senior author discovered another estuarine sibling of *M. campechiensis*, this time in the coastal lagoon systems of Martin and Palm Beach Counties, Florida (Petuch, 2013: 16, 42, 225-226). Named *Mercenaria hartae* (Figure 3 E), this Palm Beach estuarine endemic resembles *M. texana* (Figure 3 F) in shape and size but differs in having smooth areas on the shell exterior and having a bright canary-yellow shell color.

The discovery of a third estuarine sibling species of *Mercenaria campechiensis* is truly remarkable. This new dwarf venerid, *Mercenaria browni*, closely resembles both *M. texana* and *M. hartae* in shape and size, but is less colorful in being only a cream-white as opposed to the pale brown and tan pattern on *M. texana*, or the bright canary-yellow color of *M. hartae*. The new Ten Thousand Islands species lives together with, and is morphologically closest to, *M. campechiensis*, but differs in consistently having a smaller, more rounded and oval-shaped shell, in having a thinner and much more flattened shell, and in having the distinctive large, widely-spaced concentric lamellae on the early post-umbonal areas. The shell of the widespread Carolinian Province *M. campechiensis* differs from the new species in being much larger, thicker, and heavier and also in being much more triangular in shape, with a higher and more projecting umbonal area. The lunules of the two species also differ greatly, reflecting the flatter shell of *M. browni* and the more inflated shell of *M. campechiensis*. On the new species, the lunule is elongately heart-shaped with the umbones only slightly

projecting over the posterior end of the lunule. On *M. campechiensis*, the lunule is essentially round, or only slightly heart-shaped, and the umbones project out over the posterior end of the lunule and are more noticeably prosogyrate. The pallial sinus of *M. browni* is well-developed and deeply reflexed (Figure 3 B), while the pallial sinus of *M. campechiensis* is much shallower and not as reflexed (Figure 3 D). These differences indicate that *M. browni* burrows more deeply than does *M. campechiensis*, apparently to avoid the seasonal extreme fluctuations in salinity within the tidal channels and brackish lagoons of the Ten Thousand Islands.

The Eastern American venerid genus *Mercenaria* is now known to be more species-rich than was originally thought, containing six species that are distributed from the Gulf of St. Lawrence, Canada to the Yucatan Peninsula of Mexico. These species include (from north to south):

- *Mercenaria mercenaria* (Linnaeus, 1758), Gulf of St. Lawrence to North Carolina
- *Mercenaria mercenaria notata* (Say, 1822), North Carolina to Georgia
- *Mercenaria campechiensis* (Gmelin, 1791), New Jersey to the Florida Keys and the entire Gulf of Mexico
- *Mercenaria hartae* Petuch, 2013, coastal lagoons of Martin and Palm Beach Counties, Florida
- *Mercenaria browni* Petuch and Berschauer, n.sp., Ten Thousand Islands of SW Florida
- *Mercenaria texana* (Dall, 1902), coastal lagoons of Texas

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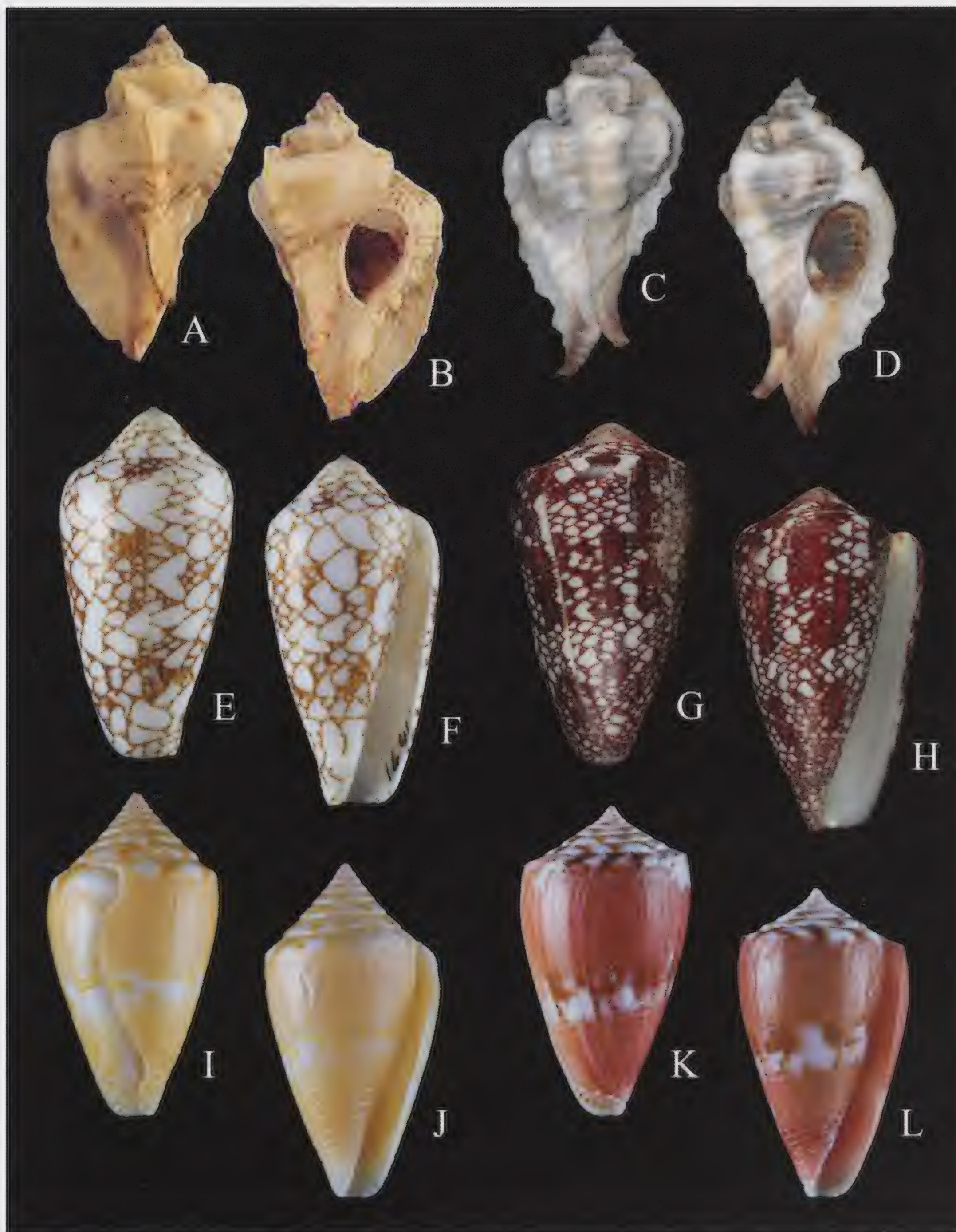


Figure 1. New Species of *Jaton*, *Darioconus*, and *Poremskiconus*.

A, B = *Jaton rikae* Petuch and Berschauer, n. sp., holotype, length 18.7 mm, Gunjur, Gambia; C, D = *Jaton hemitripterus* (Lamarck, 1816), length 38.0 mm, Dakhla, Western Sahara; E, F = *Darioconus bratcherae* Petuch and Berschauer, n. sp., holotype, length 41.7 mm, Eilat, Israel, Gulf of Aqaba; G, H = *Darioconus quasimagnificus* (da Motta, 1982), length 68.5 mm, holotype, Masirah Island, Oman (for comparison with *D. bratcherae*); I, J = *Poremskiconus potiguar* Petuch and Berschauer, n. sp., holotype, length 20.9 mm, Tibau do Sul, Rio Grande do Norte State, Brazil; K, L = *Poremskiconus mauricioi* (J. Coltro, 2004), length 23.1 mm, Rio do Fogo, Rio Grande do Norte State, Brazil.



Figure 2. New Species of *Jaspidiconus*.

A, B = *Jaspidiconus ramosorum* Petuch and Berschauer, n. sp., holotype, length 19.8 mm, Abrolhos Platform off Nova Vicosa, Bahia State, Brazil; C, D = *Jaspidiconus serafimi* Petuch and Berschauer, n. sp., holotype, length 17.7 mm, Tibau do Sul, Rio Grande do Norte State, Brazil; E, F = *Jaspidiconus tammymyersae* Petuch and Berschauer, n. sp., holotype, length 13.3 mm, Little St. James Island, US Virgin Islands; G, H = *Jaspidiconus toincabrali* Petuch and Berschauer, n. sp., holotype, length 14.0 mm, Tibau do Sul, Rio Grande do Norte State, Brazil.

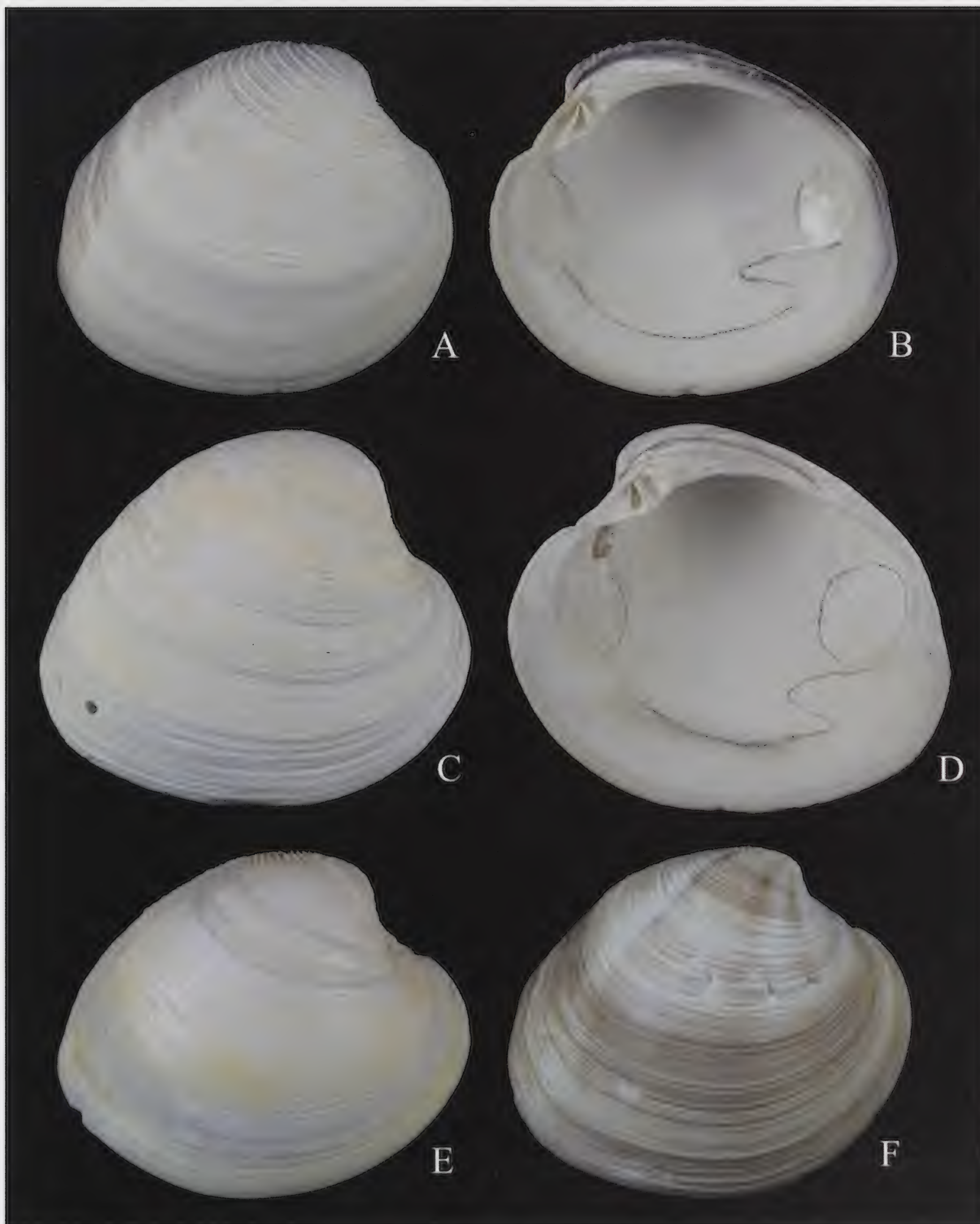


Figure 3. Members of the *Mercenaria campechiensis* complex, and *Mercenaria browni* n. sp.

A, B = *Mercenaria browni* Petuch and Berschauer, holotype, length 71.3 mm, Round Key, Ten Thousand Islands, Collier County, Florida; **C, D** = *Mercenaria campechiensis* (Gmelin, 1791), length 93 mm, Camp Lulu Key, Ten Thousand Islands, Collier County, Florida; **E** = *Mercenaria hartae* Petuch, 2013, length 76 mm, Singer Island, Lake Worth Lagoon, Palm Beach County, Florida; **F** = *Mercenaria texana* (Dall, 1902), length 50 mm, Aransas Pass, Port Aransas, Nueces County, Texas.